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SECTION 875.00 – SOURCE PLAT

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SECTION 885.00 – “AS CONSTRUCTED” PLANS

SECTION 890.00 – MAINTENANCE PROJECT PLANS

PLAN SHEET CHECKLISTS

SECTION 895.00 – PLAN SHEET CHECKLISTS

SECTION 800.00 – PLANS

SECTION 805.00 - INTRODUCTION

The Idaho Transportation Department produces plan sheets for several purposes such as for design information, construction bidding documents, historical information, legal records of survey, or departmental records. The following information explains typical plan preparations and organization that is needed to produce a set of plans that is constructible with clarity. Variations to these instructions require approval by Roadway Design. Appendix C contains specific plans, drawings, examples, etc., that can be followed when preparing project plans.

SECTION 807.00 – PLAN SHEETS

The following information is specifically for preparing project plan sheets for the Idaho Transportation Department. The plan sheets should include, in the necessary detail:

- All construction features required to complete the project;
- All right of way details;
- Items to be removed;
- New items to be constructed, etc.

Special detailed drawings may be required to clarify construction details or nonstandard items included in the project.

All plan sheets should be developed on ITD's Computer-Aided Design and Drafting (CADD) system. Those plan sheets that cannot be produced using the CADD system or that were produced before the system was available shall be scanned and stored on the CADD system. Those plan sheets produced outside of ITD shall be in a format compatible with the CADD system.

All projects will have English units throughout.

Some necessary details for preparing project plan sheets may not be covered in these procedures. If questions arise on the amount of detail or appropriate format, other similar project plans should be reviewed for examples or check with the Roadway Design section. A continuous effort should be made to simplify and clarify the project plans through discussions with the construction personnel.

The following information describes the general size, layout, and format for plan sheets.

807.01 Plan Sheet Size. ITD prepares plan sheets for design and construction in three sizes, as defined in the table below. The drawing details should not be crowded on the plan sheet. Do not use small size lettering which is too small to read on standard size prints.

PLAN SHEET DIMENSIONS				
Type	**Sheet Size (mm)**	**Left Edge Border (Binding)**	**Other Borders**	**Title Block**
Standard Size	11” x 17”	¾”	¼”	16”
Record of Survey	18” x 27”	3”	½”	23 ½”
Maintenance Project	8 ½” x 11”	1”	¼”	N/A

All final plan sheets submitted for advertisement shall be properly endorsed by the engineer. They shall be on a durable medium such as Mylar to preserve the drawings for archival purposes.

807.02 Plan Sheet Title Block. All plan sheets shall use the ITD title block designed for that specific sheet. The title block shall have all the necessary information shown in its appropriate place. Changes to the title block may be made with the approval of the Roadway Design section. The following describes the basic information in a standard title block.

Revisions

The revisions section is only for changes to the plan sheets after they have been stamped and endorsed by the engineer. Each change should be marked with a triangle and numbered successively. In the revisions box the triangle shape should be marked with the corresponding number of the plan sheet change and a date, the initials of the person making the revisions, and a description of the revision entered in the appropriate place. Each different change should be entered on a new line. Entries in this box should primarily be made by the Roadway Design section.

Preparer's Names

Enter the names of the designer, the person who checks the design, the detailer, and the person who checks the drawing, whenever appropriate.

CADD File Number

File Name: A standard electronic file naming convention is used by ITD for the naming of plan sheets to be retained and archived. As a minimum the name must begin with the key number of the project and have the .DGN extension. A full name should be used that follows the example shown below:

2659RD001.DGN

2659	RD001	.DGN	.
Project Key No.	Sheet Designator		Extension

Project Key Number: The key number for the project as identified in the Highway Development Program. All project-related electronic file names should begin with the key number.

Sheet Designator: The sheet designator number of the drawing or if it is a summary sheet, the sheet type and a consecutive numbering system. Consult CADD procedures for more details of the numbering system.

Date

Enter the date the drawing is completed, which is usually when the last corrections are made for Final Design or Contract Advertising submittal.

Section Name

The section name box is directly below the ITD name and seal and is for the area section name, or the consultant may place their business name within this box. Appropriate names would include the district and section, such as “District 6 Design” or “Headquarters Traffic Section.”

Federal-Aid Project Number

On the title sheet only, for federal-aid projects it may be necessary to show two or more project numbers when right of way and construction are handled under separate project numbers. Show the construction project number only on all other sheets.

If it is a state project, show the project number in this box.

Sheet Title, Project Name, and Description Box

A sheet title consisting of the type of sheet it is should be shown for each sheet. The names should generally coincide with those shown in the index.

The large box below should generally have the project name, but may include additional information such as sheet station limits, structure numbers, intersection names, and other brief identifying descriptions.

County, Key Number, Sheet Number

The top box is generally open but may contain the catalog number or the ITD sheet number for a particular sheet. The second box should show the county or counties in which the project is located. The third box should show the project key number. The bottom box is for sheet numbering.

Engineer's Endorsement Space

The endorsement by the engineer must be on a standard size plan sheet. Full size electronic representations of the engineer's stamp shall be used on standard size plan sheets (see Subsection 910.01).

807.03 Order of Plan Sheets

Roadway Group

Title Sheet

Standard Drawing Index

Vicinity Sketch

Total Ownership Map

Plan sheet index showing the area covered by each plan sheet on the Total Ownership Map

Special Maps

Project Clearance Summary

Typical Sections

Summaries

Roadway

Bridge

Pipe Culvert

Pipe Siphon

Irrigation Pipe

Sewer Pipe

Pipe Underdrain

Plan and Profile Sheets

Special Drawing Group

Sediment and Erosion Control

Minor Structures Drawings

Drainage Plans

Paving, Concrete Joint, Approach Slab Details

Roadside Development and Landscaping Plans

Bike Lanes and Pedestrian Path Plans

Source Plat and Reclamation Plans

Traffic Group

Illumination Materials List

Illumination Plans

Traffic Signalization Materials List

Traffic Signal Plans

Railroad Signal and Crossings

Signing Erection Specifications

Signing Plans

Pavement Marking

Delineation and Raised Channelization

Traffic Control Plans

Utility Group

Optional separate numbering

Right of Way Group

Optional separate numbering

Major Structure Group

Optional separate numbering

Bridge (Situation and Layout)

Optional separate numbering

State Maintenance Group

Optional separate numbering

Standard Drawings

Detail sheets shall be located directly after the plan sheets to which they are related.

807.04 Plan Sheet Scales. Drawing scales are expressed in non-dimensional ratios, as used in U.S. Geological Survey topographic maps. Instead of relating map distance in inches to ground distance in feet, they compare like units — feet to feet or inches to inches. For instance, at a scale of 1"=40' on the drawing represents 1 x 40 = 40 feet, 5 inches on the drawing represents 5 x 40 feet (which is also 200 feet) on the drawing represents 160 x 500 on the ground.

The following plan sheet scales shall be used on all drawings for the Idaho Transportation Department. Scales smaller than those shown can be used only by request to the Roadway Design Engineer.

Roadway Plan/Profile

	Horizontal	Vertical
Urban project scales	1" = 40'	1" = 4'
Rural project OR If complex detail is not necessary	1" = 100' 1"= 200'	1"= 10' 1" = 20'

Pavement Marking Plans

	Horizontal
Intersection improvement projects that include transitions and/or special details	1" = 40'
The minimum scale for pavement marking plan sheets that do not include transitions or special details	1" = 100'

Signal Plans

	Horizontal
Traffic sign intersection plans	1" = 40'

The District shall complete, as far as possible, an ITD 1753, Project Clearance Summary, prior to submittal of plans. The Roadway Design section will aid the District in obtaining dates and will enter those dates that become available after the District's submittal.

The approval of access control for the project shall also be shown on the ITD 1753. Access approval is indicated on the most recent ITD 606, Access Control Determination.

The ITD 1753 has a column for "Expiration Date" of clearance approvals. The clearances of other agencies such as the Army Corps of Engineers or Water Resources environment re-evaluation should be noted if their approval has a limited time schedule. This notation will assist the Resident Engineer in either meeting the required dates or requesting a time extension. Notes and estimating data may be placed on the right side blank column of this sheet.

SECTION 810.00 – PLANS AND DRAWINGS

The U.S. Survey Foot shall be the basic unit for all plans and drawings and is also the basic unit on the CADD system, with 100 subunits and 10 positional units per subunit.

810.01 Dimension Units. Common practice is to show all dimensions in feet with the unit symbol shown.

Lineal English land measurements shall be carried out to three decimal points and rounded to two. Area land measurements shall be carried out to 3 places and rounded to 2 places and be expressed in acres except as noted below. Coordinates will be carried to 4 decimal places.

In Urban or other areas where the real estate values are expected to be high, and when a requirement is very small, it is appropriate to express land area in square feet rather than acres. In the event that land area is expressed in square feet, then it shall be express the same way in all documents affecting the parcel.

On some standard drawings, bridge plans, and other detail drawings, it may be more practical to use the inch as the basic unit. In such cases, include a note stating that "All dimensions on this sheet are in inches unless otherwise noted" and show the” symbol.

810.02 Accuracy. Measurements or dimensions shall be shown to the nearest foot, tenth of a foot, or hundredth of a foot. Always consider the acceptable tolerance in construction practices and product dimensions when deciding what level of accuracy to use.

810.03 Station. For ITD, the station is defined at 100 feet. Station labeling will follow the standard nomenclature, using a plus sign (+) to separate the station number and the distance past that station.

12+40 (1240 feet from 0+00) **or** 2+65.78 (265.78 feet from 0+00)

Depending on the scale, stationing labels and major tick marks typically shall be shown for every 5 station (every 500 feet). Minor tick marks shall be shown every 100 feet. Depending on the required level of accuracy, station callouts may be to the nearest whole foot, tenth of a foot, or hundredth of a foot. (Two significant figures following the decimal point). Features such as culverts or approaches may be shown to the foot or tenth of a foot. Control points and property lines must be shown to the hundredth.

810.04 Curves. Horizontal curves shall be described by the Degree of curve and dimensions should be shown to 2 decimal places. Vertical curves are shown by length and designed to the nearest 100 feet. Dimensions for grades should be shown to 3 decimal places with elevations shown to 2 decimal places.

810.05 Angles. Angles will be shown in degrees, minutes, and seconds.

810.06 Culverts. Culvert diameters will be shown in inches according to the sizes available from suppliers. Culvert lengths will be to the nearest foot.

810.07 Standards and Manuals. The Standard Drawings are available in English units.

SECTION 813.00 – STANDARD FEATURE LEVELS AND SYMBOLS

Standard symbols frequently used on project plans are indicated in the Standard Drawing "S" series. The "S" series figures show the symbol size, line style, line weight and color for each symbol and the CADD level assignment for the element. Level assignments are based upon the type of information contained in the specific drawing based on discipline type (topography, utilities, traffic control, etc.). These standard symbols are stored in the CADD system for internal reference and use and are available on the ITD web site for use outside of the Department. All plans shall be constructed according to the level assignments for discipline specific symbols which are summarized in charts in Figure 8-1. Level assignments are shown using numerical values, however the use of level naming features of the MicroStation software is permissible.

Figure 8 - 1

Discipline: **Utilities**

Drawing Type: **Utilities**

Level Number	Layer Name	Description
1	UTILX_TELE	Existing Telephone Cable, Pole, Pole Anchor, Transmission Tower
2	UTILX_FIBOPTIC	Existing Fiber Optic Cable, Junction Box, Transmission Tower
3	UTILX_ELEC	Existing Electrical Cable, Pole, Pole Anchor, Transmission Tower
4	UTILX_PIPE-BELL	Existing Pipe with Directional Bell
5	UTILX_PIPE	Existing Pipe without Bell
6	UTILX_GAS	Existing Gas Pipe, Valve, Riser
7	UTILX_OIL	Existing Oil Pipe, Valve, Riser
8	UTILX_WATER	Existing Water Pipe, Meter, Valve, Riser, Well, Fire Hydrant
9	UTILX_SEWER	Existing Sanitary Sewer Pipe / Manhole
10	UTILX_IRRIG	Existing Irrigation Pipe, Siphon, Manhole, Minor Structures, Headwalls, etc.
20	UTILP_TELE	Proposed Telephone Cable, Pole, Pole Anchor, Transmission Tower
21	UTILP_FIBOPTIC	Proposed Fiber Optic Cable, Junction Box, Transmission Tower
22	UTILP_ELEC	Proposed Electrical Cable, Pole, Pole Anchor, Transmission Tower
23	UTILP_PIPE-BELL	Proposed Pipe with Directional Bell
24	UTILP_PIPE	Proposed Pipe without Bell
25	UTILP_GAS	Proposed Gas Pipe, Valve, Riser
26	UTILP_OIL	Proposed Oil Pipe, Valve, Riser
27	UTILP_WATER	Proposed Water Pipe, Meter, Valve, Riser, Well, Fire Hydrant
28	UTILP_SEWER	Proposed Sanitary Sewer Pipe / Manhole
29	UTILP_IRRIG	Proposed Irrigation Pipe, Siphon, Manhole, Minor Structures, Headwalls, etc.
50	ANNO_TELE	Telephone Text & Notes
51	ANNO_FIBOPT	Fiber Optic Text & Notes
52	ANNO_ELEC	Electric Text & Notes
53	ANNO_PIPE-BELL	Pipe with Bell Text & Notes
54	ANNO_PIPE	Pipe Text & Notes
55	ANNO_GAS	Gas Text & Notes
56	ANNO_OIL	Petroleum Text & Notes
57	ANNO_WATER	Water Text & Notes
58	ANNO_SEWER	Sewer Text & Notes
59	ANNO_IRRIG	Irrigation Text & Notes
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Traffic**

Drawing Type: **Workzone Traffic Control**

Level Number	Layer Name	Description
1	SIGN_POST	New / Remove and Reset Post
3	SIGN_EXIST	Retain and Protect Post
9	SIGN_PORT	Portable Changeable Message Sign
10	PVMRK_WHITE	Skip, Edge Line, Dash, Lane Line
11	PVMRK_YELLOW	Skip, No Passing, Double Yellow, Edge Line, Dash, Bar, Temp. Raised Markers
12	PVMRK_STOPBAR	Stop Bar
13	PVMRK_CROSSWK	Crosswalk
14	PVMRK_CROSSBAR	Crosswalk Crossbar
15	PVMRK_RAILRD	Railroad Crossing
16	PVMRK_ARROWS	Left and Right Turn Arrows, Straight Thru Arrows, Lane Reduction Arrows, etc.
17	PVMRK_TEXT	Pavement Marking Text (generally 8")
20	PVMRK_DELIN	Delineators
21	WKZN_BARRIER	Temporary Barriers
22	WKZN_CUSHION	Crash Cushions
29	WKZN_FLAGGER	Flagger
33	WKZN_CHNLDEV	Tubular Markers
34	WKZN_DRUM	Drums
35	WKZN_PANEL	Vertical Panels
36	WKZN_BARRICADE	Barricades
37	WKZN_EQUIP	Portable Lighting
38	WKZN_PILOTCAR	Pilot Car
39	WKZN_ATTNUATR	Truck Mounted Attenuators
40	WKZN_PORTSIGNL	Portable Traffic Signals
41	WKZN_FLSHLGHT	Flashing Warning Lights
42	WKZN_ORNGFLAG	Orange Flags
47	WKZN_WRKAREA	Cross Hatching
48	WKZN_DIRECIND	Direction of Traffic Arrow
49	WKZN_DIRECVEH	Direction of Work Vehicles
50	ANNO_SIGN	Misc. Signing Notes & Text
51	ANNO_MRKG	Misc. Pavement Marking Notes & Text
52	ANNO_DILEN	Misc. Delineator Notes & Text
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Traffic**

Drawing Type: **Signing and Pavement Marking**

Level Number	Layer Name	Description
1	SIGN_POST	Sign Post
3	SIGN_EXIST	Sign Exist
9	SIGN_PORT	Sign Exist
10	PVMRK_WHITE	White Pavement Markings
11	PVMRK_YELLOW	Yellow Pavement Markings
12	PVMRK_STOPBAR	Stopbar Pavement Markings
13	PVMRK_CROSSWK	Crosswalk
14	PVMRK_CROSSBAR	Crosswalk Cross Bar
15	PVMRK_RAILRD	Railroad Crossing
16	PVMRK_ARROWS	Lt. or Rt Turn Arrow
17	PVMRK_TEXT	Pavement Marking Text (generally 8')
18	PVMRK_BIKELN	Bike Rider Pavement Marking
19	PVMRK_BIKETXT	Bike Lane Pavement Marking Text (generally 4')
20	PVMRK_DELIN	Delineator Type 1
50	ANNO_SIGN	Misc. Signing Notes & Text
51	ANNO_MRKG	Misc. Pavement Marking Notes & Text
52	ANNO_DILEN	Misc. Delineator Related Notes & Text
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Traffic**

Drawing Type: **Signals**

Level Number	Layer Name	Description
1	SGNLX_POLE	Existing Pole, Mast Arm
2	SGNLX_HEAD	Existing Signal Heads, Pedestrian Heads
3	SGNLX_CONCJBOX	Existing Signal Concrete Junction Box
4	SGNLX_COMPJBOX	Existing Signal Composite Junction Box
6	SGNLX_CONDUIT	Existing Signal Conduit
7	SGNLX_HVLTSPARE	Existing High Voltage Spare
8	SGNLX_INCONCOND	Existing Signal Interconnect Conduit
9	SGNLX_INCONJBOX	Existing Signal Interconnect Junction Box
10	SGNLX_CTRLR	Existing Power Source, Controller Cabinet, Service Pedestal
11	SGNLX_RAILCOND	Existing Railroad Preemption Conduit, Railroad Cab
13	DETX_CONCJBOX	Existing Detention Concrete Junction Box
14	DETX_COMPJBOX	Existing Detention Composite Junction Box
16	DETX_CAMERA	Existing Video Detection Camera
17	DETX_CONDUIT	Existing Detection Conduit
18	DETX_VIDEOZONE	Existing Video Detection Zone
19	DETX_LOOP	Existing Detection Loop
20	DETX_LVLTSPARE	Existing Low Voltage Spare
21	DETX_EMERCOND	Existing Vehicle Preemption Conduit
22	DETX_EMERDET	Existing Emergency Vehicle Preemption Detector
25	SGNLP_POLE	Proposed Pole, Mast Arm
26	SGNLP_HEAD	Proposed Signal Heads, Pedestrian Heads
27	SGNLP_CONCJBOX	Proposed Signal Concrete Junction Box
28	SGNLP_COMPJBOX	Proposed Signal Composite Junction Box
30	SGNLP_CONDUIT	Proposed Signal Conduit
31	SGNLP_HVLTSPARE	Proposed High Voltage Spare
32	SGNLP_INCONCOND	Proposed Signal Interconnect Conduit
33	SGNLP_INCONJBOX	Proposed Signal Interconnect Junction Box
34	SGNLP_CTRLR	Proposed Power Source, Controller Cabinet, Service Pedestal
35	SGNLP_RAILCOND	Proposed Railroad Preemption Conduit, Railroad Cab
37	DETP_CONCJBOX	Proposed Detention Concrete Junction Box
38	DETP_COMPJBOX	Proposed Detention Composite Junction Box
40	DETP_CAMERA	Proposed Video Detection Camera
41	DETP_CONDUIT	Proposed Detection Conduit
42	DETP_VIDEOZONE	Existing Video Detection Zone
43	DETP_LOOP	Proposed Detection Loop
44	DETP_LVLTSPARE	Proposed Low Voltage Spare
45	DETP_EMERCOND	Proposed Vehicle Preemption Conduit
46	DETP_EMERDET	Proposed Emergency Vehicle Preemption Detector
50	ANNO_SIGNL	Misc. Signal Notes & Text
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Traffic**
Drawing Type: **Illumination**

Level Number	Layer Name	Description
1	ILLMX_POLE	Existing Pole, Mast Arm
2	ILLMX_LUMHEAD	Existing Luminaire Head
3	ILLMX_CONCJBOX	Existing Illumination Concrete Junction Box
4	ILLMX_COMPJBOX	Existing Illumination Composite Junction Box
6	ILLMX_CONDUIT	Existing Illumination Conduit
10	ILLMX_CTRLR	Existing Power Source, Electrical Service Pedestal
25	ILLMP_POLE	Proposed Pole, Mast Arm
26	ILLMP_LUMHEAD	Proposed Luminaire Head
27	ILLMP_CONCJBOX	Proposed Illumination Concrete Junction Box
28	ILLMP_COMPJBOX	Proposed Illumination Composite Junction Box
30	ILLMP_CONDUIT	Proposed Illumination Conduit
34	ILLMP_CTRLR	Proposed Power Source, Electrical Service Pedestal
50	ANNO_ILLUM	Misc. Illumination Notes & Text
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Discipline: **Traffic**
Drawing Type: **Details**

Level Number	Layer Name	Description
48	DETL_PLNWRK	Proposed Line Work
49	DETL_ELNWRK	Existing Line Work
50	ANNO_TEXT	Detail Text and Callouts
51	ANNO_NOTES	Detail General Notes
52	ANNO_PATTERN	Detail Patterns
53	ANNO_SYMBOL	Detail Symbols (cells)
59	ANNO_DIMEN	Detail Dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Roadway**

Drawing Type: **X-Sections**

Level Number	Layer Name	Description
10	RDWY_CURB	Curb and Gutter
11	RDWY_EDGERD	Edge of Paved / Unpaved Road, Edge of Oil
12	RDWY_BARRIER	Concrete / Metal Guardrail, Attenuators, Median Barriers
14	RDWY_SURVCNTLN	Surveyed / Designed Centerline, Station Tick Marks
20	SURF_GROUND	Natural Ground Lines
21	SURF_SUBGRD	Subgrade, Sub-Subgrade Lines
22	SURF_BASELN	Top of Base Lines, Top of 3/4 Base Lines
23	SURF_FINGRD	Finish Grade Lines, Cut Slope, Fill Slope
25	SURF_TRAIL	Misc. Paths & Trails
26	SURF_DITCH	Top of Ditch, Flow Line of Ditch, Back Slope of Ditch
30	STRUC_EXIST	Existing Storm Sewer Lines / Manholes, Culverts, Headwalls, etc.
31	STRUC_PROP	Proposed Storm Sewer Lines / Manholes, Culverts, Headwalls, etc.
32	STRUC_RETWALL	Retaining Walls
33	STRUC_NOISEWALL	Noise Walls
35	STRUC_MISC	Misc. Structures
36	STRUC_RAIL	Misc. Railroad Structures
40	UTIL_TELE	Telephone Cable, Pole, Pole Anchor, Transmission Tower
41	UTIL_FIBOPTIC	Fiber Optic Cable, Junction Box, Transmission Tower
42	UTIL_ELEC	Electrical Cable, Pole, Pole Anchor, Transmission Tower
43	UTIL_PIPEBELL	Pipe with Directional Bell
44	UTIL_PIPE	Pipe
45	UTIL_GAS	Gas Pipe, Valve, Riser
46	UTIL_PETRO	Oil Pipe, Valve, Riser
47	UTIL_WATER	Water Pipe, Meter, Valve, Riser, Well, Fire Hydrant
48	UTIL_SEWER	Sanitary Sewer Pipe / Manhole
49	UTIL_IRRIG	Irrigation Pipe, Siphon, Manhole, Minor Structures, Headwalls, Pumps, etc.
51	ANNO_ALIGN	Alignment Text
52	ANNO_UTIL	Utility Text
53	ANNO_SURF	Natural Ground & Spot Elevation Text
54	ANNO_STRC	Structure Text
55	ANNO_RAIL	Railroad Text
56	ANNO_GRID	Grid Lines, Text
57	ANNO_AXIS	Axis Lines, Text
58	ANNO_MISC	Misc. X-Section Text
59	ANNO_DIMEN	Dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Roadway**

Drawing Type: **Typicals**

Level Number	Layer Name	Description
10	RDWY_CURB	Curb and Gutter
11	RDWY_EDGERD	Edge of Paved / Unpaved Road, Edge of Oil
12	RDWY_BARRIER	Concrete / Metal Guardrail, Attenuators, Median Barriers
14	RDWY_SURVCNTLN	Surveyed / Designed Centerlines
20	SURF_GROUND	Natural Ground Lines
21	SURF_SUBGRD	Subgrade, Sub-Subgrade Lines
22	SURF_BASELN	Top of Base Lines, Top of 3/4 Base Lines
23	SURF_FINGRD	Finish Grade Lines, Cut Slope, Fill Slope
25	SURF_TRAIL	Misc. Paths & Trails
26	SURF_DITCH	Top of Ditch, Flow Line of Ditch, Back Slope of Ditch
30	STRUC_EXIST	Existing Storm Sewer Lines / Manholes, Culverts, Headwalls, etc.
31	STRUC_PROP	Proposed Storm Sewer Lines / Manholes, Culverts, Headwalls, etc.
32	STRUC_RETWALL	Retaining Walls
33	STRUC_NOISEWALL	Noise Walls
35	STRUC_MISC	Misc. Structures
36	STRUC_RAIL	Misc. Railroad Structures
40	UTIL_TELE	Telephone Cable, Pole, Pole Anchor, Transmission Tower
41	UTIL_FIBOPTIC	Fiber Optic Cable, Junction Box, Transmission Tower
42	UTIL_ELEC	Electrical Cable, Pole, Pole Anchor, Transmission Tower
43	UTIL_PIPEBELL	Pipe with Directional Bell
44	UTIL_PIPE	Pipe
45	UTIL_GAS	Gas Pipe, Valve, Riser
46	UTIL_PETRO	Oil Pipe, Valve, Riser
47	UTIL_WATER	Water Pipe, Meter, Valve, Riser, Well, Fire Hydrant
48	UTIL_SEWER	Sanitary Sewer Pipe / Manhole
49	UTIL_IRRIG	Irrigation Pipe, Siphon, Manhole, Minor Structures, Headwalls, Pumps, etc.
51	ANNO_ALIGN	Alignment Text
52	ANNO_UTIL	Utility Text
53	ANNO_SURF	Natural Ground Line, Spot Elevation, Sub and Sub-Subgrade Text
54	ANNO_STRC	Special Ditch, Structure Text
55	ANNO_RAIL	Railroad Text
56	ANNO_GRID	Grid Lines, Text
57	ANNO_AXIS	Axis Lines, Text
58	ANNO_MISC	Misc. Profile Text
59	ANNO_DIMEN	Dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Roadway**

Drawing Type: **Profile**

Level Number	Layer Name	Description
1	SURV_POINT	Benchmark
13	RDWY_VERTPNTS	PVC's, PVT's, PVI's, Vertical Angle Points, Vertical Event Points
14	RDWY_VERTALGN	Profile Grade Line
20	SURF_EXGRNDLNE	Existing Ground Line
21	SURF_SUBGRD	Subgrade, Sub-Subgrade Lines
22	SURF_BASELN	Top of Baselines, Top of 3/4 Base Lines
23	SURF_FINGRD	Finish Grade Lines
26	SURF_SPDITCH	Special Ditch Grade
30	STRC_PIPE	Pipe Culvert, Arch, Siphon
31	STRC_STRUCS	Bridges, Box Culverts, Stiff-Leg Box Culverts, Stockpass
40	UTIL_TELE	Telephone Cable, Pole, Pole Anchor, Transmission Tower
41	UTIL_FIBOPTIC	Fiber Optic Cable, Junction Box, Transmission Tower
42	UTIL_ELEC	Electrical Cable, Pole, Pole Anchor, Transmission Tower
43	UTIL_PIPEBELL	Pipe with Directional Bell
44	UTIL_PIPE	Pipe
45	UTIL_GAS	Gas Pipe, Valve, Riser, Meter, Pump
46	UTIL_PETRO	Oil Pipe, Valve, Riser
47	UTIL_WATER	Water Pipe, Meter, Valve, Riser, Well, Fire Hydrant
48	UTIL_SEWER	Sanitary Sewer Pipe / Manhole
49	UTIL_IRRIG	Irrigation Pipe, Siphon, Manhole, Minor Structures, Headwalls, Pumps, etc.
50	ANNO_SURV	Benchmark Test
51	ANNO_ALIGN	Curve Data, Bearings, Stationing, Point Text
52	ANNO_UTIL	Utility Text
53	ANNO_SURF	Natural Ground Line, Spot Elevation, Sub and Sub-Subgrade Text
54	ANNO_STRC	Special Ditch, Structure Text
55	ANNO_RAIL	Railroad Text
56	ANNO_GRID	Grid Lines, Text
57	ANNO_AXIS	Axis Lines, Text
58	ANNO_MISC	Misc. Profile Text
59	ANNO_DIMEN	Dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Roadway**

Drawing Type: **Details**

Level Number	Layer Name	Description
48	DETL_PLNWRK	Proposed Line Work
49	DETL_ELNWRK	Existing Line Work
50	ANNO_TEXT	Detail Text and Callouts
51	ANNO_NOTES	Detail General Notes
52	ANNO_PATTERN	Detail Patterns
53	ANNO_SYMBOL	Detail Symbols (cells)
59	ANNO_DIMEN	Detail Dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Roadway**

Drawing Type: **Design**

Level Number	Layer Name	Description
2	SURV_CTRLN	Surveyed Control Lines
3	SURV_POINT	Benchmarks, Set Brass / Alloy Caps, Set Rebar, Set Measurement Point
5	SURV_NORTH	North Arrow
10	RDWY_CURB	Curb and Gutter
11	RDWY_EDGERD	Edge of Paved / Unpaved Road, Edge of Oil
12	RDWY_BARRIER	Concrete / Metal Guardrail, Attenuators, Median Barriers
13	RDWY_HORPNTS	PC's, PT's, PI's, Angle Points, Event Points
14	RDWY_HORALGN	Surveyed / Designed Centerline, Station Tic Marks
15	RDWY_APPRCH	Paved / Unpaved Approaches
16	RDWY_SDWLK	Sidewalks, Back of Sidewalk, Misc. Flat Concrete
17	RDWY_CLOSURE	Road Closure
18	RDWY_MAILBOX	Mail Box
20	SURF_GROUND	Natural Ground Lines
21	SURF_SUBGRD	Subgrade, Sub-Subgrade Lines
22	SURF_BASELN	Top of Base Lines, Top of 3/4 Base Lines
23	SURF_FINGRD	Finish Grade Lines, Cut Slope, Fill Slope
24	SURF_FENCE	Fences, Gates, Snow Fence, Cattle Guard
25	SURF_TRAIL	Misc. Paths & Trails
26	SURF_DITCH	Top of Ditch, Flow Line of Ditch, Back Slope of Ditch
29	SURF_CHNLCHG	Channel Change
31	STRC_ROAD	Bridges, Abutments, Piers, Overpass, Underpass
32	STRC_RETWALL	Retaining Walls
33	STRC_NOISEWALL	Noise Walls
34	STRC_BLDNG	Building Footprint, Foundations
35	STRC_MISC	Pads, Flagpoles, Bollards, Tanks
36	STRC_RAIL	Railroad Track, Switch, Protective Devices, Signal Light
50	ANNO_SURV	Misc. Survey Notes
51	ANNO_ALIGN	Curve Data, Bearings, Stationing, Point Text
52	ANNO_RDWY	Misc. Roadway Notes and Street Names
53	ANNO_SURF	Misc. Surface Text
54	ANNO_STRC	Misc. Structure Notes
55	ANNO_RAIL	Misc. Railroad Notes
56	ANNO_GRID	Grid Notes
57	ANNO_PHOTOGRM	Photogrammetry Notes
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Right-of-Way**

Drawing Type: **Total Ownership Map**

Level Number	Layer Name	Description
40	PARCEL_SHADING	Parcel Shapes and Shading
54	ANNO_PARCEL	Parcel Information and Text
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Discipline: **Right-of-Way**

Drawing Type: **Right-of-Way**

Level Number	Layer Name	Description
1	BNDYX_SURVPNT	Existing Section Corners, Quarter Corners, 1/16 Corners, Found Cap, etc.
2	BNDYX_SECLINE	Existing Township and Range, Section, Quarter Section, 1/16 Section Lines
3	BNDYX_MISCPNT	Existing Premarks, Traverse Control, Benchmarks
4	BNDYX_POLPNT	Existing State, County, Forrest, Indian Boundary Points
5	BNDYX_POLLINE	Existing State, County, Forrest, Indian Boundary Lines
7	BNDYX_ITD	Existing Maintenance and District Boundaries
10	ROWX_PROPPNT	Existing Found / Set 1/2" & 5/8" Rebar, Found Iron Pipe
11	ROWX_PROPLINE	Existing Property, Subdivision, Lot, Block, etc. Lines
13	ROWX_PNT	Existing R/W Markers
14	ROWX_LINE	Existing R/W, Partial Access, Full Access, etc. Lines
17	ROWX_ESMNTLINE	Existing Easement, Temporary, Permanent, etc. Lines
23	BNDYP_SURVPNT	Proposed Section Corners, Quarter Corners, 1/16 Corners, Found Cap, etc.
24	BNDYP_SECLINE	Proposed Township and Range, Section, Quarter Section, 1/16 Section Lines
25	BNDYP_MISCPNT	Proposed Premarks, Traverse Control, Benchmarks
26	BNDYP_POLPNT	Proposed State, County, Forrest, Indian Boundary Points
27	BNDYP_POLLINE	Proposed State, County, Forrest, Indian Boundary Lines
29	BNDYP_ITD	Proposed Maintenance and District Boundaries
32	ROWP_PROPPNT	Proposed Found / Set 1/2" & 5/8" Rebar, Found Iron Pipe
33	ROWP_PROPLINE	Proposed Property, Subdivision, Lot, Block, etc. Lines
35	ROWP_PNT	Proposed R/W Markers
36	ROWP_LINE	Proposed R/W, Partial Access, Full Access, etc. Lines
39	ROWP_ESMNTLINE	Proposed Easement, Temporary, Permanent, etc. Lines
50	ANNO_POLBNDY	Political Boundary Line & Point Text
51	ANNO_PROP	Property Line & Point Text
52	ANNO_ITDBNDY	Maintenance & District Boundary Text
53	ANNO_ROW	R/W Line & Point Text
55	ANNO_ESMNT	Permanent, Typical, Utility & Right of Entry Text
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Plan_Sheets**

Drawing Type: **Summary Sheets**

Level Number	Layer Name	Description
1	GRAPH_D1DISCLAIM	District 1 Disclaimer
2	GRAPH_D2DISCLAIM	District 2 Disclaimer
3	GRAPH_D3DISCLAIM	District 3 Disclaimer
4	GRAPH_D4DISCLAIM	District 4 Disclaimer
5	GRAPH_D5DISCLAIM	District 5 Disclaimer
6	GRAPH_D6DISCLAIM	District 6 Disclaimer
7	GRAPH_PRELIM	PRELIMINARY, NOT APPROVED FOR CONSTRUCTION
8	GRAPH_STAMP	Engineers Stamp
9	GRAPH_D9DISCLAIM	District 9 Disclaimer
50	ANNO_TEXT	Sheet-specific text and callouts
51	ANNO_NOTES	Sheet-specific general notes
52	ANNO_PATTRN	Sheet-specific patterns
53	ANNO_SYMBOL	Sheet-specific symbols (cells)
54	ANNO_TITLE	Title block text
55	ANNO_TABLE	Summary Tables
58	ANNO_BORDER	Title block and border
59	ANNO_DIMEN	Sheet-specific dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Plan_Sheets**

Drawing Type: **Plan Sheets**

Level Number	Layer Name	Description
1	GRAPH_D1DISCLAIM	District 1 Disclaimer
2	GRAPH_D2DISCLAIM	District 2 Disclaimer
3	GRAPH_D3DISCLAIM	District 3 Disclaimer
4	GRAPH_D4DISCLAIM	District 4 Disclaimer
5	GRAPH_D5DISCLAIM	District 5 Disclaimer
6	GRAPH_D6DISCLAIM	District 6 Disclaimer
7	GRAPH_PRELIM	PRELIMINARY, NOT APPROVED FOR CONSTRUCTION
8	GRAPH_STAMP	Engineers Stamp
9	GRAPH_D9DISCLAIM	District 9 Disclaimer
50	ANNO_TEXT	Sheet-specific text and callouts
51	ANNO_NOTES	Sheet-specific general notes
52	ANNO_PATTRN	Sheet-specific patterns
53	ANNO_SYMBOL	Sheet-specific symbols (cells)
54	ANNO_TITLE	Title block text
55	ANNO-PROFGRID	Profile grid
56	ANNO-PROFTEXT	Profile text
57	ANNO_LNWORK	Sheet line work
58	ANNO_BORDER	Title block and border
59	ANNO_DIMEN	Sheet-specific dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Plan_Sheets**

Drawing Type: **Note Sheets**

Level Number	Layer Name	Description
1	GRAPH_D1DISCLAIM	District 1 Disclaimer
2	GRAPH_D2DISCLAIM	District 2 Disclaimer
3	GRAPH_D3DISCLAIM	District 3 Disclaimer
4	GRAPH_D4DISCLAIM	District 4 Disclaimer
5	GRAPH_D5DISCLAIM	District 5 Disclaimer
6	GRAPH_D6DISCLAIM	District 6 Disclaimer
7	GRAPH_PRELIM	PRELIMINARY, NOT APPROVED FOR CONSTRUCTION
8	GRAPH_STAMP	Engineers Stamp
9	GRAPH_D9DISCLAIM	District 9 Disclaimer
50	ANNO_TEXT	Sheet-specific text and callouts
51	ANNO_NOTES	Sheet-specific general notes
52	ANNO_PATTRN	Sheet-specific patterns
53	ANNO_SYMBOL	Sheet-specific symbols (cells)
54	ANNO_TITLE	Title block text
57	ANNO_LNWORK	Sheet line work
58	ANNO_BORDER	Title block and border
59	ANNO_DIMEN	Sheet-specific dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Discipline:
Drawing Type:

Plan_Sheets

Diagrams and Schematics Sheets

Level Number	Layer Name	Description
1	GRAPH_D1DISCLAIM	District 1 Disclaimer
2	GRAPH_D2DISCLAIM	District 2 Disclaimer
3	GRAPH_D3DISCLAIM	District 3 Disclaimer
4	GRAPH_D4DISCLAIM	District 4 Disclaimer
5	GRAPH_D5DISCLAIM	District 5 Disclaimer
6	GRAPH_D6DISCLAIM	District 6 Disclaimer
7	GRAPH_PRELIM	PRELIMINARY, NOT APPROVED FOR CONSTRUCTION
8	GRAPH_STAMP	Engineers Stamp
9	GRAPH_D9DISCLAIM	District 9 Disclaimer
50	ANNO_TEXT	Sheet-specific text and callouts
51	ANNO_NOTES	Sheet-specific general notes
52	ANNO_PATTRN	Sheet-specific patterns
53	ANNO_SYMBOL	Sheet-specific symbols (cells)
54	ANNO_TITLE	Title block text
57	ANNO_LNWORK	Sheet line work
58	ANNO_BORDER	Title block and border
59	ANNO_DIMEN	Sheet-specific dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Plan_Sheets**

Drawing Type: **Detail Sheets**

Level Number	Layer Name	Description
1	GRAPH_D1DISCLAIM	District 1 Disclaimer
2	GRAPH_D2DISCLAIM	District 2 Disclaimer
3	GRAPH_D3DISCLAIM	District 3 Disclaimer
4	GRAPH_D4DISCLAIM	District 4 Disclaimer
5	GRAPH_D5DISCLAIM	District 5 Disclaimer
6	GRAPH_D6DISCLAIM	District 6 Disclaimer
7	GRAPH_PRELIM	PRELIMINARY, NOT APPROVED FOR CONSTRUCTION
8	GRAPH_STAMP	Engineers Stamp
9	GRAPH_D9DISCLAIM	District 9 Disclaimer
48	DETL_PLNWRK	Proposed line work
49	DETL_ELNWRK	Existing line work
50	ANNO_TEXT	Sheet-specific text and callouts
51	ANNO_NOTES	Sheet-specific general notes
52	ANNO_PATTRN	Sheet-specific patterns
53	ANNO_SYMBOL	Sheet-specific symbols (cells)
54	ANNO_TITLE	Title text
55	ANNO_SCALE	Bar scale and text
56	ANNO_GRID	Grid lines
57	ANNO_LNWRK	Sheet line work
58	ANNO_BORDER	Title block and border
59	ANNO_DIMEN	Sheet-specific dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Minor_Structures**

Drawing Type: **Minor_Structures**

Level Number	Layer Name	Description
1	STRC_OBJLINE	Solid Object
2	STRC_HDNLINE	Hidden Concrete
3	STRC_REBAR	Metal Reinforcement
5	STRC_DTLCTRLN	Object Centerlines
6	STRC_GRNDLN	Existing / New Ground Lines in Profile
7	STRC_PATT	Crosshatching, Cross Section Patterns
8	STRC_ACTVPTS	Active Points
9	STRC_PHTLINE	Alternate Position Lines
14	STRC_RWYCTRLN	Roadway Centerlines
20	STRC_IDXCONTR	Contour Lines - Major
21	STRC_INTCONTR	Contour Lines - Minor
50	ANNO_SHEET	Basic Sheets
51	ANNO_LRGPRINT	22" X 34" Large Print Text
52	ANNO_SMLPRINT	11" X 17" Small Print Text
53	ANNO_EGRSTMP	Engineers Stamps
54	ANNO_GENNOTE	General Design Notes, Dimension Lettering, Dimension Lines
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Discipline:
Drawing Type:

Materials

Soils Profile

Level Number	Layer Name	Description
13	RDWY_VERTPNTS	PVC's, PVT's, PVI's, Vertical Angle Points, Vertical Event Points
14	RDWY_VERTALGN	Profile Grade Line
20	SURF_EXGRNDLNE	Existing Ground Line
23	SURF_FINGRD	Finish Grade
32	BORING_LOG	Test Hole, Data Line, Legend
33	SOILS_BASE_MATERIAL	Base Material Symbols
34	SOILS_BEDROCK	Bedrock Symbols
35	SOILS_CLAY	Clay Symbols
36	SOILS_CONCRETE	Concrete Symbols
37	SOILS_GRAVEL	Gravel Symbols
38	SOILS_MISC	Misc Symbols
39	SOILS_ROCK	Rock Symbols
40	SOILS_SAND	Sand Symbols
41	SOILS_SILT	Silt Symbols
42	SOILS_SILTS	Silts Symbols
51	ANNO_ALIGN	Stationing
53	ANNO_SURF	Natural Ground Line Text, Soils Text, Test Results Text
56	ANNO_GRID	Grid Lines and Text
57	ANNO_AXIS	Axis Lines and Text
58	ANNO_MISC	Misc. Profile Text
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Location**

Drawing Type: **Topography**

Level Number	Layer Name	Description
2	SURV_GPS	GPS Control Points
3	SURV_PHOTGRM	Premark, Photo Center, Grid Ticks
5	SURV_NORTH	North Arrow
10	RDWY_CURB	Curb and Gutter
11	RDWY_EDGERD	Edge of Paved / Unpaved Road, Edge of Oil
12	RDWY_BARRIER	Concrete / Metal Guardrail, Attenuators, Median Barriers
13	RDWY_HORPNTS	PC's, PT's, PI's, Angle Points, Event Points
14	RDWY_HORALGN	Surveyed / Designed Centerline, Station Tick Marks
15	RDWY_APPRCH	Paved / Unpaved Approaches, Urban Approaches, Parking Lots
16	RDWY_SDWLK	Sidewalks, Back of Sidewalk, Misc. Flat Concrete
17	RDWY_PAINT	Lane Lines, Special Pavement Markings
18	RDWY_SIGNS	Signs, Mail Boxes, Delineators, Shields
19	RDWY_SHLDR	Signs, Mail Boxes, Delineators, Shields
20	SURF_IDXCONT	Index, Depression Index, Hidden Depression Index and Major Contours
21	SURF_INTCONT	Intermediate, Hidden Intermediate, Hidden Depression Inter. and Minor Contours
22	SURF_BRKLN	DTM Breakline, Fill Slope, Cut Slope, Toe of Slope
23	SURF_SPOTELEV	Spot Elevations
24	SURF_FENCE	Fences, Gates, Snow Fence, Cattle Guard
25	SURF_TRAIL	Misc. Paths & Trails
26	SURF_DITCH	Top of Ditch, Flow Line of Ditch, Back Slope of Ditch
27	SURF_MISCFTR	Material Source, Stockpile Site
28	SURF_VEG	Tree, Tree Boundary, Bush, Bush Boundary, Stump, Cultivation Boundary
29	SURF_WATRFTR	River, Channels, Top of Bank, Canals, Creeks, Lakes, Reservoirs, Ponds
30	STRC_HYDRO	Storm Sewer Lines / Manholes, Catch Basins, Inlets, Culverts, Headwalls, etc.
31	STRC_ROAD	Bridges, Abutments, Piers, Overpass, Underpass
32	STRC_RETWALL	Retaining Walls
33	STRC_NOISEWALL	Noise Walls
34	STRC_BLDNG	Top of Ditch, Flow Line of Ditch, Back Slope of Ditch
35	STRC_MISC	Pads, Flagpoles, Bollards, Tanks
36	STRC_RAIL	Railroad Track, Switch, Protective Devices, Signal Light
50	ANNO_SURV	Misc. Survey Notes
51	ANNO_ALIGN	Curve Data, Bearings, Stationing, Point Text
52	ANNO_RDWY	Misc. Roadway Notes and Street Names
53	ANNO_SURF	Misc. Surface Text
54	ANNO_STRC	Misc. Structure Notes
55	ANNO_RAIL	Misc. Railroad Notes
56	ANNO_GRID	Grid Notes
57	ANNO_PHOTOGRM	Photogrammetry Notes
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **Landscape**
Drawing Type: **Details**

Level Number	Layer Name	Description
48	DETL_PLNWRK	Proposed Line Work
49	DETL_ELNWRK	Existing Line Work
50	ANNO_TEXT	Detail Text and Callouts
51	ANNO_NOTES	Detail General Notes
52	ANNO_PATTERN	Detail Patterns
53	ANNO_SYMBOL	Detail Symbols
59	ANNO_DIMEN	Detail Dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Discipline: Hydraulics
Drawing Type: **Hydro**

Level Number	Layer Name	Description
26	SURF_DITCH	Ditches, Top of Ditch, Bottom of Ditch, Flow Line of Ditch, Special Ditches
29	SURF_WATER	Channel Change
30	STRUC_HYDRAUL	Storm Sewer Lines / Manholes, Catch Basins, Inlets, Culverts, Headwalls, etc.
53	ANNO_SURF	Misc. Surface Notes & Text
54	ANNO_STRC	Misc. Structure Notes & Text
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Figure 8 – 1 cont.

Discipline: **General**

Drawing Type: **Border**

Level Number	Layer Name	Description
1	GRAPH_D1DISCLAIM	District 1 Disclaimer
2	GRAPH_D2DISCLAIM	District 2 Disclaimer
3	GRAPH_D3DISCLAIM	District 3 Disclaimer
4	GRAPH_D4DISCLAIM	District 4 Disclaimer
5	GRAPH_D5DISCLAIM	District 5 Disclaimer
6	GRAPH_D6DISCLAIM	District 6 Disclaimer
7	GRAPH_PRELIM	PRELIMINARY/NOT APPROVED FOR CONSTRUCTION
8	GRAPH_STAMP	Engineers Stamp
9	GRAPH_D9DISCLAIM	District 9 Disclaimer
50	ANNO_TEXT	Sheet-Specific Text and Callouts
51	ANNO_NOTES	Sheet-Specific General Notes
52	ANNO_PATTERN	Sheet-Specific Patterns
53	ANNO_SYMBOL	Sheet-Specific Symbols (cells)
54	ANNO_TITLE	Title Block Text
55	ANNO_PROFGRID	Profile Grid
56	ANNO_PROFTEXT	Profile Text
57	ANNO_LINEWORK	Sheet Line Work
58	ANNO_BORDER	Title Block and Border
59	ANNO_DIMEN	Sheet-Specific Dimensions
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

Discipline: **Bridge**

Drawing Type: **Structures**

Level Number	Layer Name	Description
1	STRC_OBJLINE	Solid Object
2	STRC_HDNLINE	Hidden Concrete
3	STRC_REBAR	Metal Reinforcement
5	STRC_DTLCTRLN	Object Centerlines
6	STRC_GRNDLN	Existing / New Ground Lines in Profile
7	STRC_PATT	Crosshatching, Cross Section Patterns
8	STRC_ACTVPTS	Active Points
9	STRC_PHTLINE	Alternate Position Lines
14	STRC_RWYCTRLN	Roadway Centerlines
20	STRC_IDXCONTR	Contour Lines - Major
21	STRC_INTCONTR	Contour Lines - Minor
50	ANNO_SHEET	Basic Sheets
51	ANNO_LRGPRINT	22" X 34" Large Print Text
52	ANNO_SMLPRINT	11" X 17" Small Print Text
53	ANNO_EGRSTMP	Engineers Stamps
54	ANNO_GENNOTE	General Design Notes, Dimension Lettering, Dimension Lines
60	RSVD_1	Reserved 1 (non-print)
61	RSVD_2	Reserved 2 (non-print)
62	RSVD_NOTES	Notes (non-print)
63	RSVD_3	Reserved 3 (non-print)

SECTION 815.00 – LETTER SIZES AND LINE WIDTHS

Maintaining the minimum letter height and letter stroke width is very important so that information does not disappear or become illegible when plan sheets are photocopied or reduced. The recommended requirements are as follows:

CADD SYSTEM TEXT GUIDE				
(Standard Sheet)				
Scale	**0.07**	**0.08**	**0.10**	**0.12**
1”=20’	1.4	1.6	2	2.4
1”=40’	2.8	3.2	4.0	4.8
1”=100’	7.0	8.0	10.0	12.0
1”=200’	14.0	16.0	20.0	24.0
1”=1000’	70.0	80.0	100.0	120.0
1”=2000’	140	160	200	240

Drawing notes should normally be a combination of uppercase and lowercase lettering. Using all uppercase lettering for drawing notes is also acceptable. Uppercase lettering is desirable for all drawing titles.

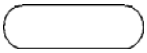
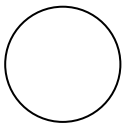
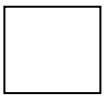
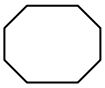
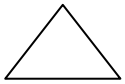
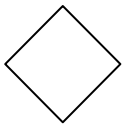
SECTION 817.00 – NOTE PLACEMENT

Notes and lettering on plan sheets should be readable from either the bottom or right-hand edge of the sheet. Vertical lettering, approximately perpendicular to the bottom of the sheet, should be upright in relation to the right-hand edge of the sheet. All other lettering should be upright in relation to the bottom of the sheet.

Main Menu
Cover
ToC
Figure ToC
100 200
300 400
500 600
700 800
900 1000
A B
C D

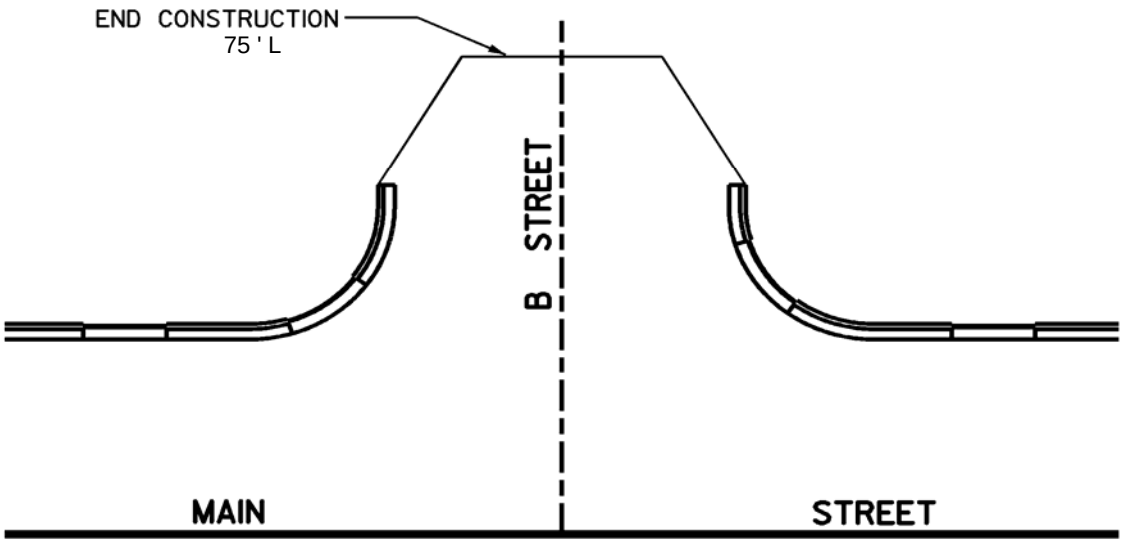
SECTION 820.00 – PLAN SHEET NOTE SYMBOLS

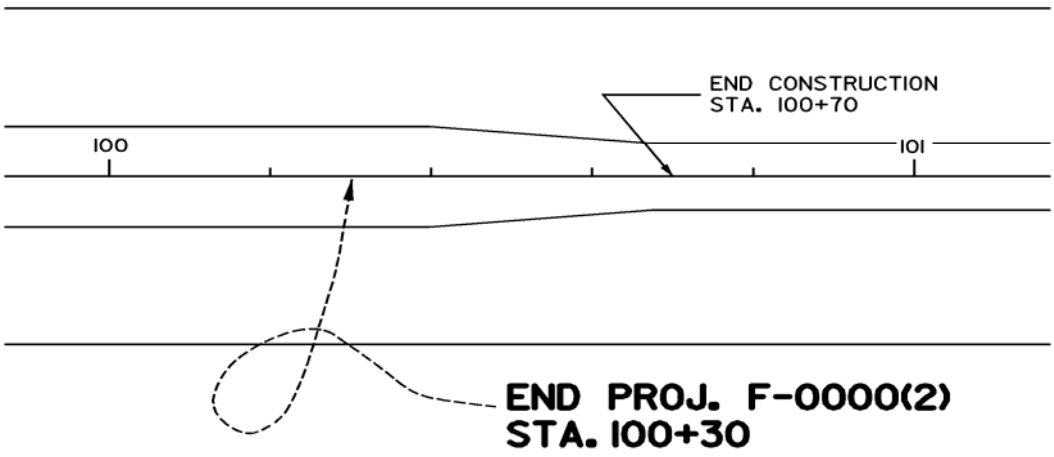
Callouts on the plan sheets that make reference to notes or further information shall use the following standards:

SYMBOL	
	Capsules designate the pay item callouts. (Numbers to reflect bid items and/or special provision items. Use the pay item number.)
	Circles may be used for notes.
	Squares designate curve data. (Start with number 1 and increase by increments of 1. Number each sheet separately.)
	Octagons designate property ownership. (Number according to right of way information.)
	Triangles designate revisions to the plans. (Start with number 1 and increase by increments of 1. To be used only during Contract Advertising submittal by Roadway Design.)
	Miscellaneous items to be determined by the designer.

SECTION 823.00 – ROADWAY TRANSITIONS

The termination of a roadway project usually involves a segment where the roadway width is varied to connect the new roadway pavement with the other existing roadway pavements. This connecting segment of pavement shall be appropriately labeled on the plan sheets as "BEGIN CONSTRUCTION" and "END CONSTRUCTION." The appropriate plan sheet notations are as follows:





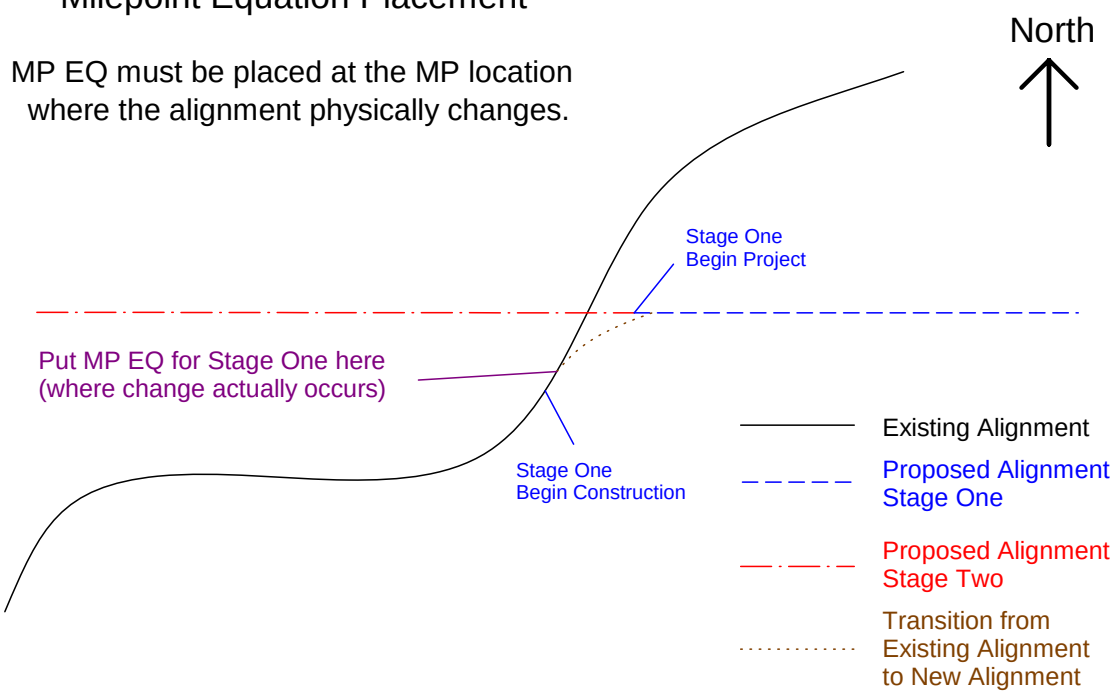
SECTION 825.00 – MILE POSTS & MILEPOINT EQUATIONS

Mileposts shall be indicated on the roadway plans both by numeric sequence and appropriate roadway stationing. The Title Sheet shall note the milepoint for the beginning and end of the project with the appropriate road segment code.

When the centerline length of the project differs from that of the existing route by more than the minimum requirement (see below), a milepoint equation (MP EQ) will be required on the plans with the appropriate roadway stationing. The following guidelines are provided for the placement of MP EQ.

- *General Placement*: MP EQ will be placed at either the beginning or ending of the physically changed (realigned) portion of the project, not the project limits (see diagram below).

Milepoint Equation Placement



- *Successive Realignment Projects—Descending:* For a series of successive roadway realignment projects where the realigned portions of each project are contiguous or less than 52.8 ft distance apart and are to be constructed during successive fiscal years in descending milepost order, the MP EQ will be placed at the beginning of the realigned portion of the first project. As each contiguous project is built, the value of the preceding project MP EQ will be added to or subtracted from the value of the current project MP EQ so that a single MP EQ accurately accounts for all changes resulting from contiguous, successive realignments.

- Successive Realignment Projects—Ascending: For a series of successive roadway realignment projects where the realigned portions of each project are contiguous or less than 52.8 ft distance apart and are to be constructed during successive fiscal years in ascending milepost order, the MP EQ will be placed at the end of the realigned portion of the first project. As each contiguous project is built, the value of the preceding project MP EQ will be added to or subtracted from the value of the current project MP EQ so that a single MP EQ accurately accounts for all changes resulting from contiguous, successive realignments.
- *Isolated realignment projects:* MP EQ will be placed at the end of the realigned portion of the project.
- *Minimum Realignments:* On projects with only a minimum of realignment, a milepost equation shall not be used unless the effective change in centerline length exceeds 52.8 ft. This reduces the number of milepost equations and retains the historical data on previous roadway segments.

For all realignment projects, there are two (2) conditions under which a new Segment Code must be assigned to a new alignment. If any part of the existing alignment greater than 52.8 ft in centerline length is left open for use by the traveling public, a new Segment Code must be assigned to the new alignment; or, if the centerline length of a new alignment exceeds the length of the existing alignment by 52.8 ft or more, a new Segment Code must be assigned to the new alignment.

SECTION 830.00 – TITLE SHEET

A title sheet must be created by the District prior to the preliminary design review. Project Tracking contains roadway historical data, if needed, relative to project designations and beginning and ending locations. The data required to complete the title sheet (see Figure 8-4) are as follows:

- **Project Number Designation**
  - Add the project number to the main heading.
  - Add the project number to the title block. If there are different project numbers for Preliminary Engineering, Right of Way, or Construction, show all of the project numbers on the title sheet but only the Construction number on the remaining sheets.
  - Add the key number and county name to title block.
  - Add the project number, project location, and roadway segment code to the state map.

- **Index of Plan and Profile Sheets (include all prepared sheets)**
  - List the sheets in sequential order. Similar sheets (typical sections, summaries, plans, and profile) can be grouped together. Only Utility plans, Right of Way plans, and Bridge drawings may have separate numbering. See Subsection 807.03 for the order of plan sheets.
  - Expand the size of the index box as needed.
- **Bridge Drawings**
  - List Bridge drawings with the appropriate drawing number either consecutively with the other drawings or separately numbered by the Bridge section.
- **Standard Drawings**
  - Determine which Standard drawings are required and list separately under the index box or use the Standard Drawing Index Sheet in Appendix C and mark the appropriate drawings.
- **Date Title Sheet**
  - Use the month and year nearest to the PS&E submittal date of the plans.
- **Scales**
  - Show graphically (bar scales) the scales used on the plan and profile sheets.
- **Project Limits (on the vicinity map, show project limit designations)**
  - Show project limits by brackets (make project limits stand out).
  - Show stationing of project limits.
  - Black in route and project area.
- **Locate Sources on Vicinity Map**
  - Locate materials sources and show pit numbers.
  - Show stockpile sites (if included in project).
  - Show any other sites applicable to the project.
- **Design Designation**
  - Obtain the latest design designation data and add this information to the title sheet.
- **Total Sheets**
  - Determine the actual number of sheets (may be exclusive of the Utility plans, Right of Way plans, or Bridge drawings) and add to the title block.

SECTION 835.00 – MAPS AND EXHIBITS

A vicinity sketch map is a multipurpose, small-scale plan or map showing the entire project. The vicinity map shown on the Title Sheet may be all that is needed on some projects. If a separate vicinity sketch map is necessary to show more detail or for a road closure and maintenance segment, the map may be a copy of the total ownership map, a section of county map, a specially drawn map, or any other type of map that shows the entire project on a realistic scale.

Where a Road Closure and Maintenance Exhibit is required to show an entire project, then that exhibit can be used as the Vicinity Sketch Map and included in the plans. Data on the preparation of the exhibit for the Road Closure and Maintenance Agreement are covered in Section 450.00.

A Total Ownership Map must be prepared for the Right of Way portion of the plans. The Total Ownership Map can be included in the project plans in lieu of the Vicinity Sketch Map.

SECTION 840.00 – TYPICAL SECTION SHEETS

Typical sections for roadways, approaches, frontage roads, streets, curbs, gutters, medians, channels, dikes, and other appropriate cross sectional data must be shown. These illustrations are to be completed with station limits, dimensions of widths, and depths of material to be constructed. Overall widths on typical sections shall be shown to the nearest tenth of a foot. Intermediate widths for separate types of base, etc., may also be shown to the nearest full tenth of a foot. Thickness of various courses shall be established to the nearest tenth of a foot, which is the basis for all computations and construction operations. The District shall review Materials Reports to ensure that all design features are correct and complete on the Typical Sections.

Progressive instructions for completing the Typical Section Sheets are as follows:

- **Typical Roadway Sections**
  - Draw sections at a size that is easily readable.
  - Show the station limits ABOVE each typical section to include transition stations.
  - Dimension clearly to the nearest tenth of a foot overall width from finished shoulder to subgrade shoulder. Dimension clearly to the nearest tenth of a foot intermediate widths for separate courses.
  - Specify roadway crown slopes (in percent slope).
  - Specify fore- and back-slopes and Standard Drawing Number.
  - Denote location of "Profile Grade" and/or Control Line.
  - Show any special ditch treatment.

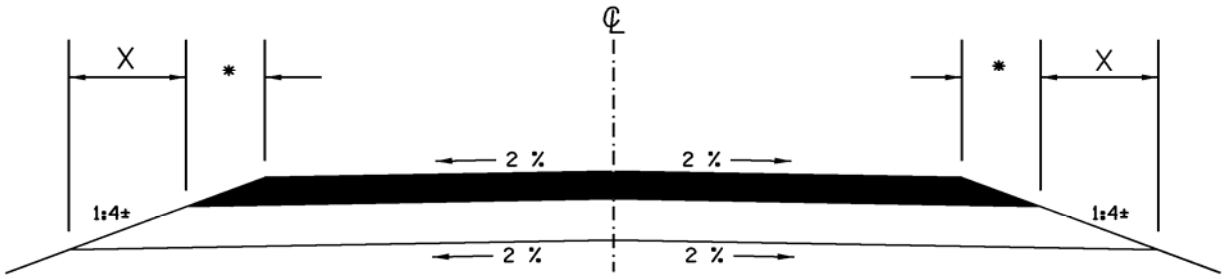
- Specify minimum ditch depths.
- Show "Basic" right of way widths.
- Specify median treatment, if any.
- Dimension clearly the depth of the various courses of material using multiples of hundredth of a foot. Show construction fabrics. State the class and number of courses of plantmix.
- Black in or highlight pavement courses that are different form Base Courses.
- Show lane and paved shoulder widths to the nearest tenth of a foot.
- Show "Seal Full Width" if appropriate.

- **Quantities**
  - Quantities for base and surfacing must be computed from the approved Project Materials Report.
  - Compute base and surfacing, rounding up to the nearest ton per station.
  - Surfacing quantities for plantmix shall include additives in the t/Sta. figures.
  - List the base courses by type of material for each layer of the base. For example: 0.4’ compacted ¾” Aggregate Base Estimated at 150 T/Sta.
  - See Figure 8-2 for the standard methods of computing quantities of various bid items.
- **Title Blocks**
  - Add title block information.
  - Show drafter's or designer's name and the date in the title block.
- **Notes**
  - Typical section and estimating notes, when placed on the typical sheets, are to be placed on the right-hand side of the sheet (see Figure 8-3).
  - The Phase 3 Materials Report should be used as a reference for estimating notes.

Figure 8-2

STANDARD METHODS OF COMPUTING QUANTITIES

TYPICAL SECTION COMPUTATION



TYPICAL CROWN SECTION

Step 1: Choose foreslope width for plant mix pavement, Subsection 405.03 I. of the 2004 State Standard Specifications: on initial pavement placement, the shoe may be 18 in wide for depths 0.2 ft, or less. For depths greater than 0.2 feet, the shoe shall be 24 in wide. On all pavement overlays, the shoe shall be 24 in wide.

Step 2: Calculate X distance. X distance is to be rounded to the nearest foot; for distances less than 0.5' round down and distances equal to or greater than 0.5' round up. Tables are furnished showing foreslope widths for various material depths.

$$X = \frac{\text{Depth of material at foreslope}}{\text{Algebraic difference of foreslope and crown slope}}$$

Example: Depth of material at foreslope (0.5' base plus 1.0' rock cap) is 1.5; foreslope slope is 4:1 or 0.25'/ft; crown slope is 0.02'/ft.

Calculate X Distance: X = 1.5' ¸ (0.25 - 0.02) = 1.5' ¸ 0.23 = 6.52' (round to 7')

Step 3: Calculate foreslope width for base: 0.5' ¸ (0.25 - 0.02) = 2.17' (round to 2.0')

Calculate foreslope width for rock cap: 1.0' ¸ (0.25 - 0.02) = 4.35' (round to 5.0')

For this example, assume the following information from the Phase 3 Materials Report:

¾" Aggr. at 145 lbs./c.f. for Plant Mix Pavement including Asphalt & Additives.

¾" Aggr. at 144 lbs./c.f. for Base including 7% water.

Rock Cap at 138 lbs./c.f..

The following formula calculates tons per station:

T/Sta. = Width x Depth x Weight x Ton/2000 lbs x 100'/ Station

Figure 8-2
(continued)

0.3’ Plant Mix Pavement

(17’ + 19’) x 0.3’ x 145 lbs./c.f. x ton/2,000 lbs x 100’/Sta = 78.3 T/Sta., round to 78 T/Sta.

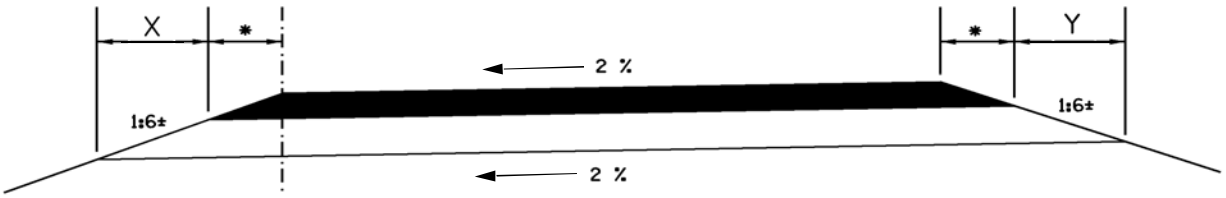
0.50’ Comp. ¾” Aggr. for Base

(19’ + 21.2’) x 0.5’ x 144 lbs./c.f. x ton/2,000 lbs. x 100’/Sta = 144.72 T/Sta., round to 145 T/Sta.

1.0’ Rock Cap

(21.2’ + 26’) x 1.0 x 138 lbs./c/f. x ton/2,000 lbs x 100’ Sta. = 325.68 T/Sta., round to 326 T/St

Choose foreslope width for plant mix pavement, Subsection 405.03. of the 2004 State Standard Specifications: on initial pavement placement, the shoe may be 18 in wide for depths 0.2 ft, or less. For depths greater than 0.2 feet, the shoe shall be 24 in wide. On all pavement overlays, the shoe shall be 24 in wide



TYPICAL SHED SECTION

$$X = \frac{\text{Depth of material at foreslope}}{\text{Algebraic difference of foreslope and crown slope}}$$

$$Y = \frac{\text{Depth of material at foreslope}}{\text{Algebraic sum of foreslope and crown slope}}$$

- Algebraic sum of foreslope and crown slope **Notes for Second Typical Section Sheet**
  - Notes are needed on other Typical Section Sheets only if there are special notes required for Typical Sections shown on those specified sheets.
- **Method of Computing Typical Section Quantities**
  - Figure 8-2 gives a progressive method for the computation of ballast materials to be placed on the roadway. The following provides guidelines that will eliminate recomputation of quantities at various design stages:
- Subgrade section width (X & Y distances) is to be to the nearest foot.
- Base material is to be computed, rounding to the nearest ton per station.
- Bituminous and shoulder material is to be computed, rounding to the nearest ton per station.

SECTION 845.00 – PROJECT CLEARANCE SUMMARY SHEET

All project clearances are to be verified by the Roadway Design section as part of the Final Project Approval. The ITD 1753, Project Clearance Summary, is used to make a permanent plan record of those clearances. The Project Clearance Summary provides a record and reference for clearances when a legal challenge occurs after the project is under contract.

The use of a rough draft of the summary by the designer to record clearances as they are obtained in project development eliminates lengthy file searches. Use the date column is for the date of the letter or approval document from the approving agency. In the case where a specific person has responsibility for approval, the date of that approving signature, if shown on the document, is the date to be recorded on the summary. Hearing dates shall be the date when the hearing was held.

Figure 8-3

TYPICAL SECTION SHEET NOTES

Project combination adjustment factor is _____.

Class _____ compaction specified.

Estimating Basis

Reconditioning:

Reconditioning is required from Sta. _____ to Sta. _____.
Water for Reconditioning will be _____ MG.
Excavation of Soft Spots is required between Sta. _____ and Sta. _____.

Treated Base:

_____ Asphalt for _____ (Plant Mix., Road Mix) Base Course at _____%
by weight. Source _____ Lab No. _____.
Cement for Cement Treated Base at _____% by weight.
_____% Hydrated Line Filler.
_____ Asphalt for Curing Seal at _____ Gals/Sq.Yd.
Blotter Material at _____ Lbs/Sq.Yd. Source _____.
Cover Coat Material Type _____ at _____ Lbs/Sq.Yd. Source _____.

Tack and Prime:

_____ for Prime at _____ Gals/Sq.Yd.
_____ for Tack at _____ Gals/Sq. Yd.
Blotter Material at _____ Lbs/Sq.Yd. Source _____.

Surface Treatment:

Type _____ Surface Treatment.
First Application _____ at _____ Gals/Sq.Yd.
Blotter Material at _____ Lbs/Sq.Yd. Source _____.
Cover Coat Material Type _____ at _____ Lbs/Sq.Yd. . Source _____.

Second Application _____ at _____ Gals/Sq.Yd.
Cover Coat Material Type _____ at _____ Lbs/Sq.Yd. Source _____.

Third Application _____ at _____ Gals/Sq.Yd.
Cover Coat Material Type _____ at _____ Lbs/Sq.Yd. Source _____.

Paving:

_____ for Road Mix at _____% and Additives at _____% by weight.
Source _____ Lab No. _____.
_____ for Plant Mix at _____% and Additives at _____% by weight. Source _____ Lab No. _____.
Concrete Pavement using Coarse Aggregate Size No. 3.
Source _____ Lab No. _____.

Seal: _____ for Seal at _____ Gals/Sq.Yd.
Cover Coat Material Type _____ at _____ Gals/Sq.Yd. Source _____.

_____ for optional Fog Coat at _____ Gals/Sq.Yd.
Blotter Material at _____ Gals/Sq.Yd. Source _____.

Aggregate: Size, Est. Aggregate Compacted mass density (Lbs./C.F.), including additions.

_____ "Aggr. at _____Lbs./C.F. for Base, including _____% Water. Lab No. _____.
_____"Aggr. Type B at ____Lbs./C.F. for Cement Treated Base, including _____% Water. Lab No. _____
_____"Aggr. at ____ Lbs./C.F. for Road Mix Pavement, including 4% Water*. Lab No. _____
_____"Aggr. at _____ Lbs./C.F. for Plant Mix Base, including Asphalt and Additives. Lab No. _____.
_____ "Aggr. at _____ Lbs./C.F. for Plant Mix Pavement, including Asphalt and Additives. Lab No. __.
Blotter Material at _____ Lbs./C.F. Source _____.
Reject Material at _____ Lbs./C.F. Source _____.
Cover Coat Material at _____ Lbs./C.F. (loose weight). Source _____.

Base, prime, surface treatment, plant mix, seal coat, etc., quantities have been increased on the Roadway Summary to construct gores, islands, approaches, and (other).

*Add the 4% water to Summary Quantities ONLY - Use Dry Weight(Ton/Sta) on Typical Section.

SECTION 850.00 – PLAN SUMMARY SHEETS

To summarize the project plan, the following project plan summary sheets are available on the CADD only. Contact Engineering Support for information.

Roadway Summary

Bridge Summary

Pipe Culvert Summary

Pipe Siphon Summary

Irrigation Pipe Summary

Sewer Pipe Summary

Pipe Underdrain Summary

The Roadway Summary should be prepared separately for each designated project in the set of project plans. The title block and name of persons compiling and checking data shall be indicated on the summary sheets. The sheet numbers for plan and profile with

stations are shown in each column for items that are shown on the plan or profile sheets. The Item No., Item (description), and Unit of Measurement shall be compatible with the project bid schedule. **Abbreviations should be used only when necessary**. Totals can be used for any items that are uniform quantities from sheet to sheet, or totals for items that are calculated from the typicals such as base and pavement.

Any structures that are 20 feet or more span, as measured along the centerline, are classified as Bridges and should be listed separately on a Bridge Summary Sheet. The Bridge summary sheets shall include quantities for the structure such as structural excavation, backfill, concrete steel, etc., with these quantities excluded from the roadway summaries. These project quantities will be furnished by the Bridge section upon completion of the bridge plans.

All pipe summary sheets (See Appendix C - Plans) shall be completed for applicable types of pipe to be used on the project. Appropriate data shall be completed for the appropriate columns of the pipe summary sheets. The total pipe length by size should be noted in the total columns without reference to type of pipe material. The quantities for pipe installation such as structural excavation, backfill, concrete, catch basins, etc., should be included in the total for specific roadway summary items.

SECTION 855.00 – PLAN AND PROFILE SHEETS

The plan and profile for a project can be combined on a single plan sheet or separated on two sheets. The typical plan-profile sheets provide an example of how the project data should be presented on the project plans, should be used as guidelines for the design personnel, and periodically reviewed to reestablish the requirements.

Items on the profile shall be limited to profile and corresponding data, benchmarks and earthwork quantities (mass diagram), and showing installed pipes (locations and elevations without callouts).

Standard symbols should be representative of the feature, should indicate whether the item is existing or proposed, and should not need a note to explain the symbol.

Utility and right of way data may be shown on a separate set of plans.

Use item number ovals for identifying pay items, with all identical items referenced together on the right-hand side of the sheet. Future development of an automated estimate system on the CADD system will use this method. Construction items shall be indicated by a number or pay item and detailed with a corresponding number or pay item on the plan sheet only.

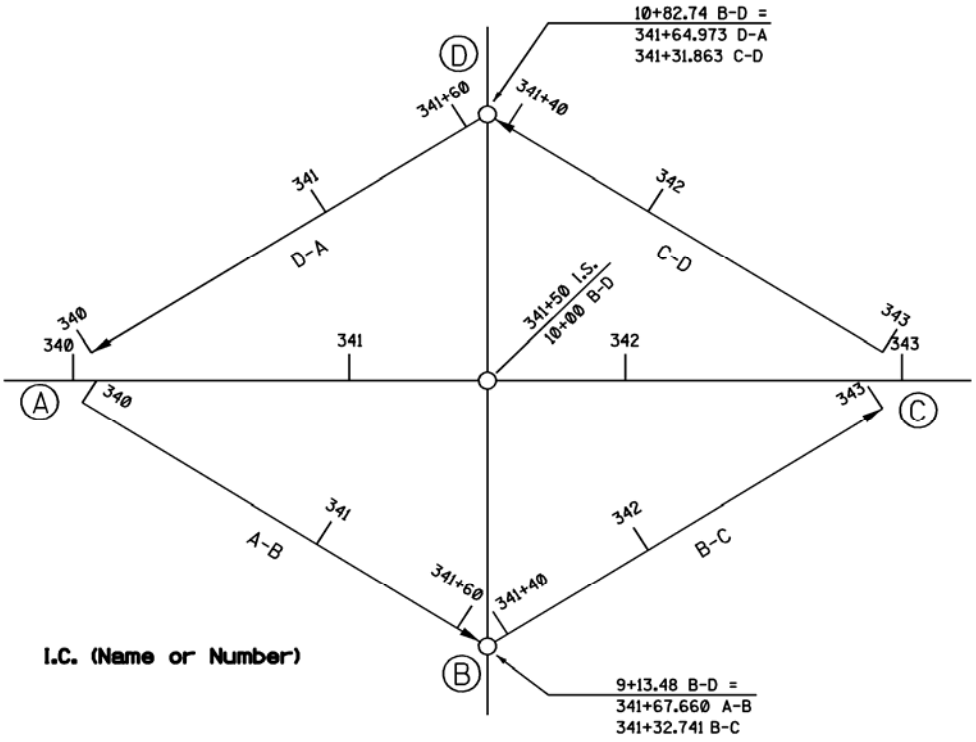
Non-pay items such as pipe removal shall be shown on the top portion of the plan sheet, but shall not be assigned a number.

Highlighted notes can be used to point out special requirements that have been overlooked in previous projects.

SECTION 860.00 – INTERCHANGE PLAN AND PROFILE

An adequate scale should be selected for the interchange to show all the interchange details while providing room for notes and control data. Several plan sheets may be required for an interchange; i.e., having a plan sheet for each half of the interchange and a sheet for the cross road with necessary profile sheets. Do not include details on the plan and profile for bridge and pipe data that is on the bridge plans and the pipe summary sheets.

The interchange should be referenced and stationed in accordance with the following diagram:



Stationing on the ramps is in the same sequence as the main Interstate Roadways. Stationing for ramps C-D and B-C are backed up from Interstate Station 343 at point C. The ramp survey control line is to be located on the inside ramp shoulder. The ramp beginning point is the intersection of the outside edge of the Interstate travelway and the ramp control line to eliminate unnecessary ramp stationing and allow better control of grade transitions to and from the ramps.

The ramp profile grades at the beginning or end of the ramps should be reviewed carefully relative to Interstate grade and shoulder slope that may cause grade sag. A

straight-line grade transition from the ramp beginning or end, which is the Interstate grade, to the shoulder edge of the Interstate will eliminate this problem.

The ballast for the ramps is usually a different depth than for the Interstate. To simplify the ballast transition, the ballast depth for the Interstate can be carried along the ramp beyond the common point of the Interstate and ramp subgrade.

SECTION 865.00 – SIGNING AND PAVEMENT MARKING PLAN

Each roadway project requires traffic signing and roadway pavement marking plans even though the work may not involve federal-aid participation. If the work is to be performed by state forces, the use of state forces should be clearly noted on each plan sheet. Typical signing plan and signing erection specifications sheets are available as a preprinted sheet or from the CADD files. Other detail signing sheets, such as sign post details or sign legends, are available from the Traffic section. On signing and pavement marking plan sheets, two roadway sections may be on the same signing and pavement marking plan sheet if there is room and match lines are used.

SECTION 870.00 – MASS DIAGRAMS

Mass Diagrams are graphical and mathematical tabulations of project excavation, embankment, borrow, and haul quantities to guide placement of subgrade materials, determine the most economical distribution of subgrade materials, and provide estimates of project bid quantities. A Mass Diagram shall be prepared on each grading project, used in the determination of estimates, and provided to the Resident Engineer and Contractor for guidance during construction.

SECTION 875.00 – SOURCE PLAT

The plat and record is intended to furnish all the information required to establish the quality and quantity of material in the source, amount of overburden, required reclamation, and property ties and boundaries required for securing use of the source.

SECTION 880.00 – STANDARD DRAWINGS

Standard Drawings are prepared and maintained by the Roadway Design section. Most Standard Drawings are available on the CADD. Complete sets of all approved Standard Drawings are available upon request.

A project should be designed using a specific Standard Drawing as the standard the contractor shall use for that project. The Standard Drawing numerical designation (A 4) and Title (Rural Minor Collector Grading) shall be shown on the project Title Sheet or

the Standard Drawing Index Sheet, inserted into the plans, and the required Standard Drawings marked.

Occasionally, projects have been designed with a specific Standard Drawing in effect with a revision occurring before the project goes to contract. This inconsistency causes confusion on construction and in some cases has resulted in unnecessary contract change orders or claims. Every effort should be made to provide Standard Drawings that reflect current design and construction practices and provides standard details that are used on recurring projects. The availability of CADD systems provides an opportunity to develop three dimensional views on Standard Drawings that give the inspector and contractor an improved visual illustration of the final product, reduce construction errors, and improve communication. Suggestions and recommendations on new Standard Drawings or revisions are strongly encouraged. A sketch of the change or a marked-up existing drawing should be directed to the Roadway Design Engineer for approval.

It is now possible to plot the Standard Drawings locally for inclusion with plan sets. The procedure utilizes the Engineer's disclaimer rather than the signature.

SECTION 885.00 – "AS CONSTRUCTED" PLANS

The original project plans are returned to the District when the project contract has been awarded for construction. A reduced set of project plans are retained and filed by the Roadway Design section as a permanent record of the project. These plans are used to document project design, construction activities, and modifications to the highway system in case of legal action, public inquiry, or other requests.

As the project is constructed, appropriate major revisions to the roadway such as extra lanes, added width, signalization, roadway illumination, additional right of way requisition, or spot major improvements need be indicated on existing plan sheets for "As Constructed" submissions. These submittals should show date of completion, revisions to roadway, and persons performing the work. A white print reflecting these changes should be forwarded to the Roadway Design section to update their master file of roadway plan sheets.

At the completion of each project, a set of "As Constructed" plans with the completion date shall be prepared by the Resident Engineer. All project corrections, revisions, and change order modifications shall be noted on these "As Constructed" plans. The "As Constructed" stamp shall be used after the changes are made.

Two sets of plan sheets (11" X 17") must be provided to the Roadway Design section for filing the "As Constructed" plan sheets. If there is a structure on the project, one set will be forwarded to the Bridge Section. If the project plans were prepared on the CADD system, the changes shall be made on the project CADD file with the revised original drawings filed with the original project plans in the District and an "As Constructed" copy provided to Roadway Design. If the plans were manually drafted, they should be scanned and revisions made on the CADD system with an "As Constructed" copy provided to the Roadway Design section. Any questions on CADD file updates, revised project details, or record files should be directed to the Roadway Design Engineer.

The District Right of Way Agent shall provide a set of the “Official Right of Way” plans to the County Assessor following purchase and property revisions that occur during construction. Any property revisions or relocation of property access points shall also be indicated on the “As Constructed” plans. At the completion of the project, when all right of way monuments have been installed, a "record of survey" shall be filed with the respective County Recorder.

SECTION 890.00 – MAINTENANCE PROJECT PLANS

The size and the type of the maintenance project and work to be done will dictate the number of sheets that are used for each project. The sheet size for maintenance projects will be 8 ½” x 11” or 11” x 17” prepared on durable paper. If the plans are to have more than six standard plan sheets (8 ½” x 11” excluding standard drawings), then prepare a standard title sheet and place all data on standard sized plan sheets. Underground storage tank (UST) projects are an example of projects that will typically require standard sized plans. Each project shall include but shall not necessarily be limited to the following:

- **Sketch Map:** Portion of a county map showing the project area with the following information:
  - Source number with symbol, milepost (or equivalent), and highway name or number.
  - Stockpile number with symbol, site number, milepost (or equivalent), and highway name and number.
  - Bracketed project limits and milepost (or equivalent) of project.
- **Typical Sections:** Sufficient data to show how the project affects the existing roadway.
- **Summary of Quantities:** Use the same format as required for other projects (heading, etc.).
- **Sheets:** Number all project sheets.
- **Standard and Special Drawings:** List all Standard Drawings, Special Drawings, Reclamation Plat, etc., to give an account of sheets to be included in the project.

PLAN SHEET CHECKLISTS

SECTION 895.00 – PLAN SHEET CHECKLISTS

To ensure there are no errors or omissions, Figure 8-4 shall be used when checking the various plans prepared for a project.

Figure 8-4 (1 of 4)

PLAN SHEETS CHECKLIST

Project No. _____ Key No. _____ _____ Date_____

Engineer's stamp, date, and signature are required on all sheets.

TITLE SHEET ..... _____
Complete Title Block ..... _____
Highway Number or Road Number ..... _____
Project No. and Key No. ..... _____
County or Counties ..... _____
Place and Date of Drawings ..... _____
Horizontal and Vertical Scales (shown graphically) ..... _____
State Map (upper right side) Showing Mileposts, Project Name and Road Segment Code ..... _____
Sheet Index Box (upper left corner) ..... _____
List of Structure and Standard (including date) Drawings(upper left corner or on a separate sheet) ... _____
Design Designation ..... _____

LAYOUT MAP (on Title Sheet or a separate Exhibit) ..... _____
North Arrow ..... _____
Scale (shown graphically) ..... _____
Section, Township and County Lines ..... _____
General Course of Proposed and Present Road ..... _____
Town (with population), Railroads, Streams ..... _____
Station at Begin and End of Project ..... _____
Location of Project Materials Sources ..... _____

VICINITY SKETCH MAP ..... _____
Complete Title Block ..... _____
Show Information for Road Closure and Maintenance Agreement ..... _____
Scale (shown graphically) ..... _____
Section, Township, City Limits ..... _____
Name of Towns (with current census), Railroads, Streams (with direction of flow) ..... _____
Existing Road ..... _____
Begin and End of Project with Milepost and Station Equation to Adjoining Projects ..... _____
Proposed Alignment ..... _____

TOTAL OWNERSHIP MAP ..... _____
Complete Title Block ..... _____
Scale (shown graphically) ..... _____
Section, Township, City Limits ..... _____
Name of Towns (with population), Railroads, Streams (with direction of flow) ..... _____
Existing Roads ..... _____
Begin and End of Project with Milepost and Station Equation to Adjoining Projects ..... _____
Proposed Alignment ..... _____
Ownership Tabulation (Parcel No., Owner's Name, Area of Ownership with Subtotals of New and Existing R/W, Remainders Left and Right, Permanent and Temporary Easements) ..... _____

Figure 8-4 (2 of 4)

CLEARANCE SUMMARY ..... _____
Complete Title Block ..... _____
Check all Clearances in Project Files ..... _____
Estimating Date, Class of Compaction, and Increased Quantity Note (or show on Typical Section Sheet) ..... _____

TYPICAL SECTION SHEET ..... _____
Complete Title Block ..... _____
Check Phase 3 Materials Report ..... _____
Relation of Control Profile Grade Line and Survey Centerline ..... _____
Location of Profile Grade Same as Profile Sheets ..... _____
Dimensions Shown in Decimals of a Foot ..... _____
Show Location of Subgrade ..... _____
Crown and Shoulder Slope ..... _____
Depths of Compacted Ballast Materials ..... _____
Number of Plant Mix Courses and Class of Plant Mix ..... _____
Basic Right of Way Width ..... _____

ROADWAY AND BRIDGE SUMMARIES ..... _____
Complete Title Block ..... _____
Summary by Sheets, Headings for all Columns, Item Numbers ..... _____
Sheet Number, Stationing and Length of Each Sheet ..... _____
Pay Quantities from Other Summary Sheets ..... _____
Total Length in feet to 2 Decimal Places, Bridges and Non-participation Items Separate ..... _____
Check Item Numbers and Nomenclature ..... _____
Bridge Summary Agrees with Situation and Layout Summary ..... _____
Separate Summaries are Required for each Fund Source (i.e., F, HES, etc.) ..... _____
All Pay Quantities from Other Summary Sheets (Pipe, Structure, etc.) ..... _____
Non-Participating Items Should have Separate Summary ..... _____
Check Summaries with Engineer's Cost Estimate ..... _____

PIPE SUMMARIES ..... _____
Complete Title Block ..... _____
Check Phase 2 Materials Report ..... _____
Review that Acceptable Alternates are Shown ..... _____

SOURCE PLAT ..... _____
Complete Title Block ..... _____
All Bearings and Distances are Shown ..... _____
Source Area to be worked is Shown ..... _____
Test Holes are in or Around Area to be Worked ..... _____
Reclamation Plan Approved ..... _____
Note on Plat or in Special Provisions Whether or not Source Reclamation is Required ..... _____
Right of Way and Archeological Clearance ..... _____
Materials Engineer Should Stamp and Sign the Source Plat ..... _____
Material to be Obtained Includes Those Specified in Special Provisions ..... _____
Requirements (washing, blend sands, etc.) Included in Special Provisions ..... _____

Figure 8-4 (3 of 4)

PLANS _____

Complete Title Block _____
Check Review Letters (preliminary and final) _____
Check Horizontal Alignment for Standards _____
Mark Every Station – Number Every 5 Stations _____
Equations of Stationing _____
Bearings (check with adjacent projects) _____
Curve Data (Radius, Delta, Tangent, Length, Super) _____
Station at P.C., P.T. and Spiral Points _____
Station and Deflection at Angle Points _____
R/W Lines and Width of R/W at Breaks and Each End of Sheets _____
Matchlines at each end of sheets and elsewhere as needed _____
R/W Symbol for Access and Easements (note specific purpose of easement) _____
Utility Relocations Present and Proposed at Whose Expense _____
Vertical Clearance of Utilities _____
Railroads, Showing Name, R/W and Encroachments _____
Fences _____
Drainage Shown, Including Intermittent _____
Buildings, Trees, Septic System, etc. (note removal items) _____
Ditches, Canals, Streams, Lakes (names and direction of flow) _____
Station, Type, and Symbol of Drainage Structures (both proposed and existing) _____
Channel Change, Small Ditches and Dikes _____
Guardrail, Delineators, Riprap, Other Misc. Items _____
Marshes and Swampy Ground, Cliffs and Bluffs _____
Present Road, Showing Portion to be Obliterated _____
Towns (Name-Limits-Names of Streets, Blocks, Pop., etc.) _____
Section Lines, Showing Corners Found and Section Ties _____
Township and Range _____
Section Subdivisions, Designations (as NE4 SW4 23 or Lot No.) _____
County Lines, State Lines, City Limits _____
Stationing of Property Line Intersections and Easements _____
Land Use and Ownership Parcel No. with Acreage Figures _____
Approaches with Dimensions (check R/W Use Policy) _____
North Arrow _____
Begin and End of Project with Mile Post and Station Equation to Adjoining Projects _____
Project and R/W Markers _____
R/W Widths Against X-Sections, Including Slope Rounding _____
Show Limits of Cut and Fill Slopes _____
If Multiple Funding Sources, Show Funding Break on Plans or by Narrative _____

Figure 8-4 (4 of 4)

PROFILE ..... _____
Complete Title Block ..... _____
Check Vertical Alignment for Standards ..... _____
Ground Line ..... _____
Indicate Grade Location (check typical section) ..... _____
Percentage of Grade (three decimal places) ..... _____
Special Ditch Grades ..... _____
Vertical Curve Data (length, elevations, stations) ..... _____
Mark Every Station – Number Every 5 Stations ..... _____
Equations of Stationing ..... _____
Grade Point Excavation and Backfill ..... _____
Structures (check station and grades) ..... _____
Benchmarks ..... _____
Begin and End of Project and Ties to Adjoining Project ..... _____
Excavation, Embankment, Borrow and Waste (sheet totals) ..... _____
Haul Showing Placement ..... _____
Roadway Length (less bridge length) ..... _____
Embankment Foundation Compaction ..... _____
Depth and Location of Sub-Subgrading ..... _____

BRIDGE SHEETS ..... _____
Complete Title Block ..... _____
Check Phase 4 Materials Report (Piles or Pile Points) ..... _____
Proper Transition of Guardrail to Bridge ..... _____
Standard Drawings Referenced Shown on Title Sheet ..... _____
Check Pay Quantities with Bridge, Situation/Layout Sheet, and Roadway Summaries ..... _____